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EXAMINER
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TRIEU, THAI BA

ART UNIT	PAPER NUMBER
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3748

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/30/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.



### **DETAILED ACTION**

This Office action is in response to the Amendment filed on February 02, 2007. Applicant's cooperation in correcting the informalities in the specification and abstract is appreciated. Applicant's cooperation in amending the claims to overcome the claim objections relating to informalities as well as indefinite claim language is also appreciated.

Claims 1-10 were cancelled; claims 11-17 were amended; and claims 18-19 were newly added.

#### ***Claim Objections***

Claim 11 is objected to because of the following informalities:

- Line 5, -- **value** -- should be inserted after "***limiting amplitude***" (for consistency of claims).

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 18 and its dependent claims 11-16 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically,

- In claim 18, lines 13-14, the recitation of "regulating or controlling fashion" renders the claim indefinite, since it is not clear that which component(s)/element(s) or

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which parameter(s) need(s) to receive/accept the regulating/controlling fashion; and how the regulating/controlling fashion is to be performed? Applicants are required to identify the component(s)/element(s) or parameter(s) and the regulating/controlling fashion, or to revise the claimed limitation.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claim 11, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (Patent Number 6,298,718 B1).***

Regarding claim 17, Wang discloses an internal combustion engine, in particular of a motor vehicle,

- having an intake section (22) in which a compressor (17) for generating charging air and an air flow sensor (38) for determining an output signal which correlates to the intake air flow are arranged,

having an engine control unit (30) which communicates with the airflow sensor (38) and uses the output signal to control and/or regulate the internal combustion engine;

having a compressor control unit (30) which regulates and/or controls the compressor as a function of a state variable which describes the behavior of the compressor;

wherein the compressor control unit (30) communicates with the air flow sensor (38) and uses the frequency and/or the amplitude of the output signal of the air flow sensor to detect compressor creaking or compressor pumping and to control and/or regulate the compressor accordingly (See Figures 1, 33, and 8, Column 9, line 28-67, and Column 10, lines 1-64) .

However, Wang fails to disclose the location of the airflow sensor being arranged upstream of the compressor in the intake section.

It is the examiner's position that the airflow sensor being arranged upstream of the compressor in the intake section in the above claimed positions would have been obvious to one having ordinary skill in the art. More specifically, one having ordinary skill in the art would have positioned the airflow sensor being upstream of the compressor in the intake section. The use of the airflow sensor would have detected the volume/amount of the airflow.

Note that the air in the intake conduit has its own natural oscillation frequency/amplitude due to the intake air/compressed air ripple. Then, the output signal of the airflow sensor is to be the frequency /amplitude output signal.

**Regarding claims 11, 18-19,** the method as claimed would be inherent during the normal use and operation of the modified Wang device as disclosed in the rejection

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of claim 17. Additionally, Wang discloses said at least one limiting value comprising a first limiting value and a second limiting value of the induction air flow greater than the first limiting value (See Figure 8).

***Claims 17-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (Patent Number 6,298,718 B1), in view of Danno et al. (Patent Number 4,705,001).***

**Regarding claim 17,** Wang discloses an internal combustion engine, in particular of a motor vehicle,

- having an intake section (22) in which a compressor (17) for generating charging air and an air flow sensor (38) for determining an output signal which correlates to the intake air flow are arranged,

- having an engine control unit (30) which communicates with the airflow sensor (38) and uses the output signal to control and/or regulate the internal combustion engine;

- having a compressor control unit (30) which regulates and/or controls the compressor as a function of a state variable which describes the behavior of the compressor;

- wherein the compressor control unit (30) communicates with the airflow sensor (38) and uses the output signal of the airflow sensor to detect compressor creaking or compressor pumping and to control and/or regulate the compressor

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accordingly (See Figures 1, 33, and 8, Column 9, line 28-67, and Column 10, lines 1-64) .

However, Wang fails to disclose the location of the airflow sensor being arranged upstream of the compressor in the intake section; and the output signal being the frequency and/or the amplitude output signal.

Danno teaches that it is conventional in the turbocharged internal combustion engine art, to position the airflow sensor (16) being arranged upstream of the compressor in the intake section; and utilize the output signal being the frequency and/or the amplitude output signal (See Figure 1, Column 3, lines 28-39).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have positioned the airflow sensor (16) being arranged upstream of the compressor in the intake section; and utilized the output signal being the frequency and/or the amplitude output signal, as taught by Danno, to improve the efficiency, in the Wang device.

**Regarding claims 18-19**, the method as claimed would be inherent during the normal use and operation of the modified Wang device as disclosed in the rejection of claim 17.

***Claims 12-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (Patent Number 6,298,718 B1), in view Danno et al. (Patent Number 4,705,001), and further in view of Engel et al. (Patent Number 6,253,748 B1).***

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The modified Wang discloses the invention as recited above, and further discloses the compressor (5) forming a component of an exhaust gas turbocharger (3, 4, 5) (See Figure 1).

However, the modified Wang fails to disclose a set point charging pressure being reduced, the opening condition of an exhaust gas recirculation device, and the injection quantity.

Engel teaches that it is conventional in the internal combustion engine art having an exhaust gas recirculation system, to utilize the limiting value is exceeded, a set point charging pressure being reduced, an exhaust gas recirculation valve (120) of an exhaust gas recirculation device of the internal combustion engine (100) is actuated in order to open it; and the injection quantity of the internal combustion engine being reduced (See Figures 1-5, See Column 3, lines 31-67, Columns 4-5, lines 1-67, and Column 6, lines 1-17).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a set point charging pressure being reduced, the opening condition of an exhaust gas recirculation device and the injection quantity, as taught by Engel, to improve the control system of the modified Wang.

***Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (Patent Number 6,298,718 B1), in view Danno et al. (Patent Number 4,705,001), and further of Fausten et al. (Patent Number 6,308,517 B1).***



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The modified Wang discloses the invention as recited above, and further discloses the compressor (5) forming a component of an exhaust gas turbocharger (3, 4, 5) (See Figure 1).

However, the modified Wang fails to disclose a set point charging pressure being reduced, the opening condition of an exhaust gas recirculation device, a guide vane device of a turbine; and the injection quantity.

Fausten teaches that it is conventional in the internal combustion engine art having an exhaust gas recirculation system, to utilize the limiting value is exceeded, a set point charging pressure being reduced, an exhaust gas recirculation valve (20) of an exhaust gas recirculation device of the internal combustion engine (M) is actuated in order to open it; a guide vane device (16) of a turbine of the exhaust gas turbocharger being actuated in order to open the guide vanes; and the injection quantity of the internal combustion engine being reduced (See Figures 1, See Column 3, lines 15-67, Column 4, lines 1-67, and Column 6, lines 1-7).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a set point charging pressure being reduced, the opening condition of an exhaust gas recirculation device, a guide vane device of a turbine; and the injection quantity, as taught by Fausten, to improve the control system of the modified Wang.

### ***Response to Arguments***

Applicant's arguments with respect to claims 11-19 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TTB  
March 21, 2007



Thai-Ba Trieu  
Primary Examiner  
Art Unit 3748